

CLAIMS

1. A pyrotechnic composition for producing IR-radiation, characterised in that
 fluorinated spherical, carbocyclic cage molecules or polymers with such fluorinated cage molecules as monomers are included as an oxidation agent, and
 a halophilic metal combining with fluorine in an exothermic reaction or such a metal alloy is contained as a fuel.
2. A pyrotechnic composition according to claim 1 characterised in that fluorinated spherical, carbocyclic cage molecules of the general formula $(CR^F)_n$ with $R^F = C_mF_{2m+1}$ or polymers with such fluorinated cage molecules as monomers are included as an oxidation agent, wherein n is a natural number and m is a natural number including 0.
3. A pyrotechnic composition according to claim 2 characterised in that $m = 0$ or 1.
4. A pyrotechnic composition according to claim 2 or claim 3 characterised in that $n = 4, 6, 8, 20, 60$ or 70.
5. A pyrotechnic composition according to claim 4 characterised in that $(CF)_4$, $C_4(CF_3)_4$, $(CF)_6$, $C_6(CF_3)_6$, $(CF)_8$, $C_8(CF_3)_8$ and/or $(CF)_{20}$ is included as an oxidation agent.
6. A pyrotechnic composition according to claim 1 characterised in that polyfluorofullerenes of the general formula $C_{60+2n}F_{2m}$ or polymers with such polyfluorofullerenes as monomers are included as an oxidation agent, wherein n is a natural number including 0 and m is a natural number.
7. A pyrotechnic composition according to claim 6 characterised in that $C_{60}F_{48}$ and/or $C_{60}F_{60}$ is included as an oxidation agent.

8. A pyrotechnic composition according to claim 1 characterised in that polyfluorofullerenes of the general formula $C_{60+2n}R^1_mR^2_bZ_y$ or polymers with such polyfluorofullerenes as monomers are included as an oxidation agent, wherein R^1 is a straight or branched hydrocarbon chain or an aromatic radical with up to 100 carbon atoms, R^2 is a straight or branched fluoroalkyl with up to 100 carbon atoms and Z is a hydrogen, fluorine, or chlorine atom, and wherein n, m and y are natural numbers including 0 and b is a natural number.

9. A pyrotechnic composition according to one of claims 1 to 8 characterised in that the fuel is a metal from the group of the metals lithium, beryllium, magnesium, zinc, calcium, strontium, barium, boron, aluminium, titanium, zirconium, hafnium or a mixture or alloy of said metals.

10. A pyrotechnic composition according to claim 9 characterised in that the fuel is magnesium.

11. A pyrotechnic composition according to one of claims 1 to 10 characterised in that the molar stoichiometry of the pyrotechnic composition complies with the formula

$$\Phi / M \leq w$$

wherein Φ is the number of fluorine atoms per fluorinated spherical carbocyclic cage molecule or monomer, M is the number of metal atoms and w is the maximum degree of oxidation of the metal.

12. A pyrotechnic composition according to one of claims 1 to 11 characterised in that the oxidation agent is sublimated on to the metal.